

Memorandum

September 21, 2016

To: Steve Renninger & Leslie Patterson, USEPA; Ref. No.: 038443-201

Madelyn Adams, Ohio EPA

194

From: Julian Hayward/Valerie Chan/cb/37

cc: Ken Brown, ITW; Jim Campbell, EMI, Wendell Barner;

Barner Consulting; Bryan Heath, NCR

Subject: Dryden Road Buried Utility Information

United States Environmental Protection Agency (USEPA), GHD, and the Respondents to the Administrative Settlement Agreement Order on Consent for Removal Action Docket No. V-W-13-C-010 (Respondents) participated in conference calls regarding the elevated levels of methane detected seasonally from soil gas probe GP-2. GP-2 is located on the east side of Dryden Road in Moraine, Ohio, adjacent to the Dayton Power and Light property at 1900 Dryden Road, as shown on Figure 1.

GHD notes that the soil gas monitoring at probes in the vicinity of GP-2 on the west side of Dryden Road shows the general absence of methane. The gas present at GP-2 has been confirmed to be a mixture of methane and petroleum-related substances. On this basis a local source in the area of GP-2 appears to be causing the elevated readings at GP-2. Information regarding buried utilities has been collected to examine the possibility of preferential gas migration pathways as outlined in this memo.

Based on the conference call discussions, GHD completed the following:

- Provided notification of the potential explosive hazard to Dayton Power and Light (DP&L) and the City of Moraine, on August 16, 2016.
- Contacted the City of Moraine to request information regarding buried utilities, and was directed to Ohio Utilities Protection Services (OUPS), on August 24, 2016.
- Contacted OUPS on August 24, 2016. OUPS issued Ticket A623702683-00A on the same date.
- Completed sampling from and third-party laboratory analysis of GP-2 soil gas for TO-15 and methane,
 the results of which were provided to DP&L and City of Moraine on September 9, 2016.

OUPS member Montgomery County provided copies of various drawings (Attachment 1) with information on the following utility types, sanitary sewer, water mains, and natural gas lines. Underground utility information from remaining OUPS members (AT&T, Cincinnati Bell, Centurylink, Level 3 Communication, etc.) is presented in Attachment 2. The information from OUPS did not provide specific details for storm sewers. GHD contacted Miami Conservancy District, Montgomery County, and the City of Moraine to request said information but none was available. GHD made observations of storm drains and other features during a site visit on September 14, 2016 in conjunction with weekly soil gas monitoring.





Based on the OUPS documents, GHD and Respondents understand the locations of buried utilities are as follows:

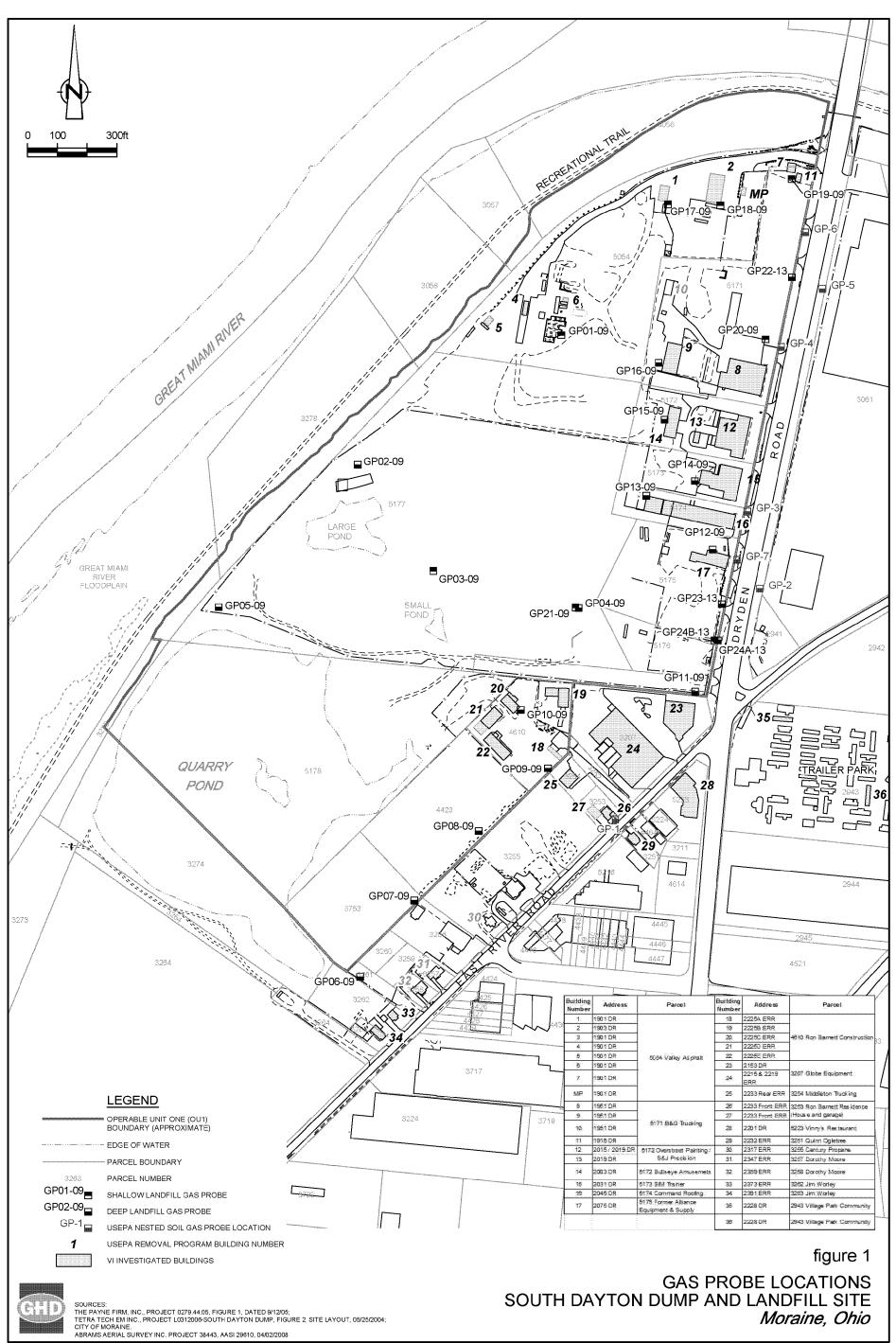
- On the west side of Dryden Road (i.e., adjacent to the South Dayton Dump and Landfill Site [Site]),
 buried utilities include an 8" or 10" water main, 4" gas line, and 10" sanitary sewer.
- An underground duct (Ohio Bell Telephone) is located slightly west of the centerline of Dryden Road (also known as Springboro Pike).
- There is one buried utility shown on the drawings which crosses over Dryden Road, which is a 6" Gas
 line that is located slightly south of the south end bridge (i.e., from the Valley Asphalt property) which
 connects to a 12" gas line on the DP&L property.
- With the exception of Cincinnati Bell, no underground utilities are shown on the east side of Dryden
 Road, adjacent to the DP&L property, north from East River Road until the 12" gas line described above.

As noted above, the drawings provided by OUPS do not provide storm sewer details. Some of the drawings make limited references to storm sewer piping. GHD conducted an inspection on September 14, 2016, and noted the presence of storm inlets and other features - see Figure 2. The manhole shown in the area of GP-2 is believed to be associated with Cincinnati Bell.

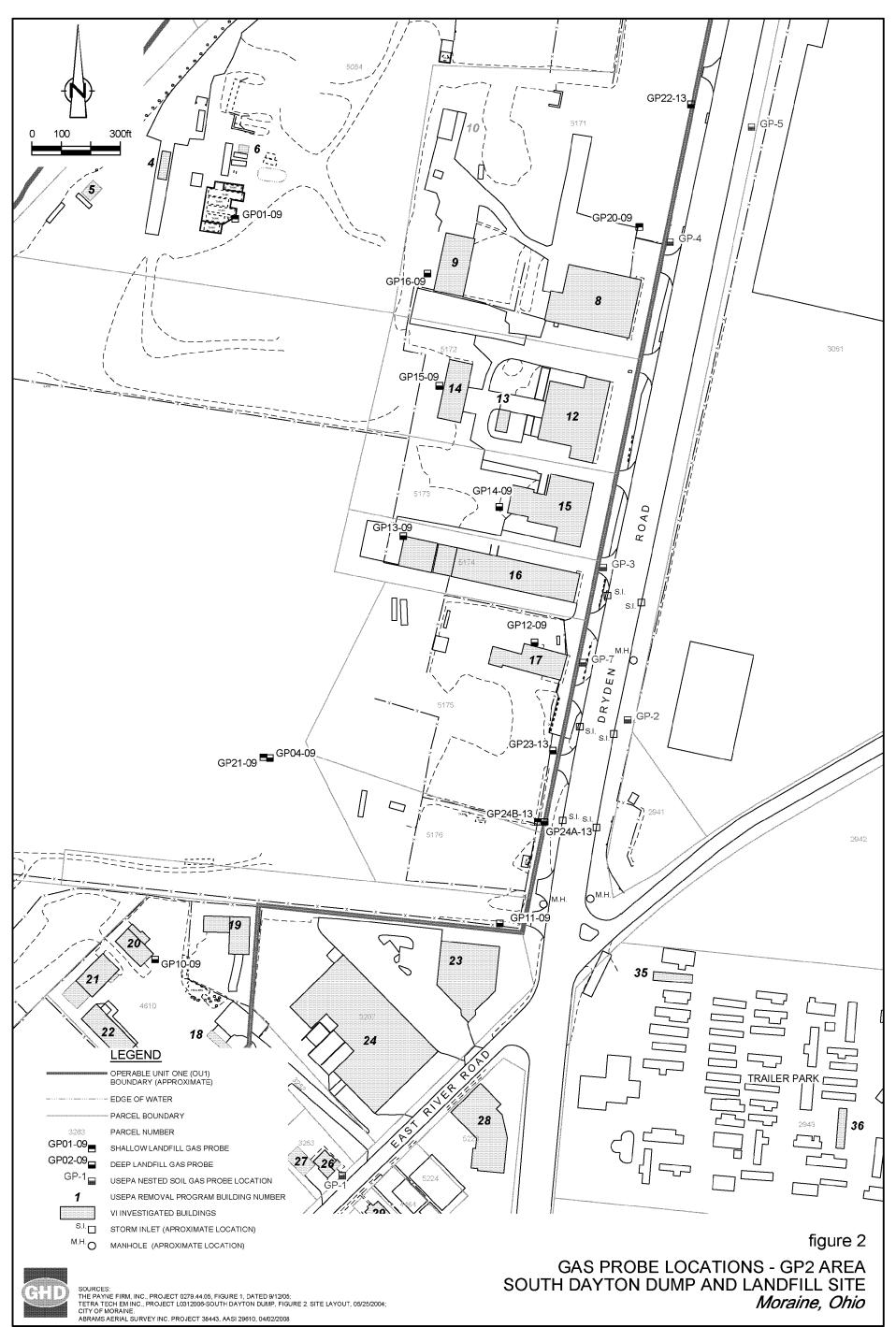
Soil stratigraphy in the area along the west side of Dryden Road is provided by borehole information logged by GHD (formerly Conestoga-Rovers & Associates, CRA). Borehole locations and stratigraphy logs are presented in Attachment 3. Stratigraphy logs for the soil gas probes (GP-1 to GP-7) installed along Dryden Road by USEPA contractor Weston / Dynamac are not available. GP-2 is screened at two depths, 12 and 16 feet below ground surface (ft bgs). In Site area soil gas probes, that interval is characterized by permeable, loose, medium to coarse sand and/or gravel.

The buried utility information for Dryden Road, spanning north from East River Road to Nicolas Road in Moraine Ohio, is presented in the following attachments. The locations of the buried utilities have been summarized above. Based on available information the apparent storm sewer inlets along Dryden Road require further assessment to determine possible interconnection. Otherwise the available information does not indicate the presence of buried utilities crossing Dryden Road that would represent plausible gas migration pathways. Should you have any questions or comments, feel free to contact us.

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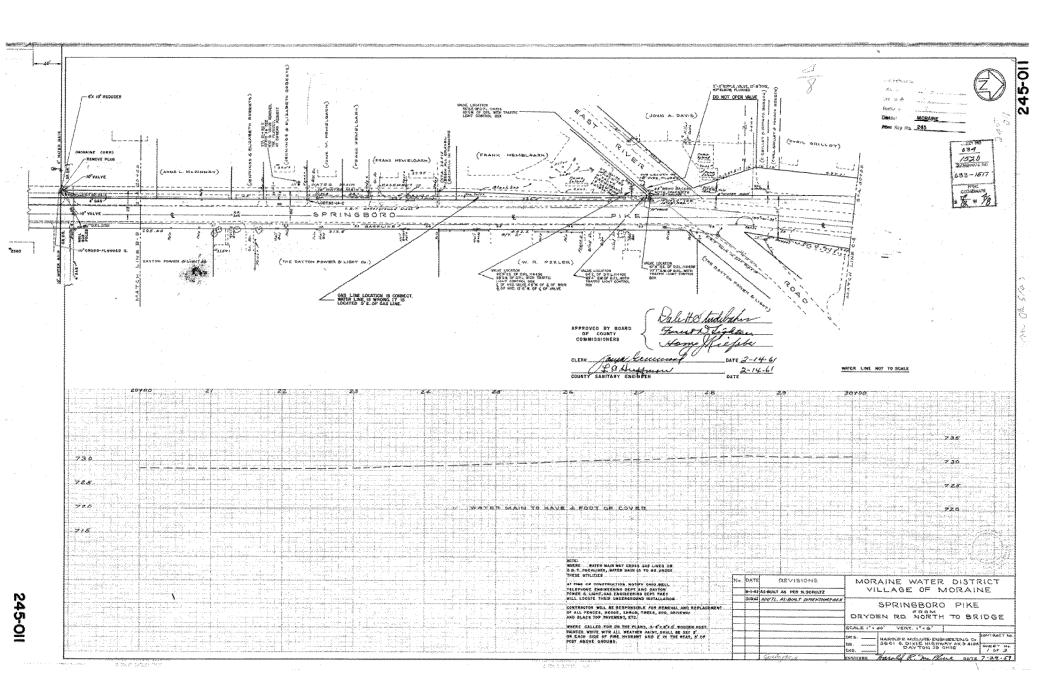


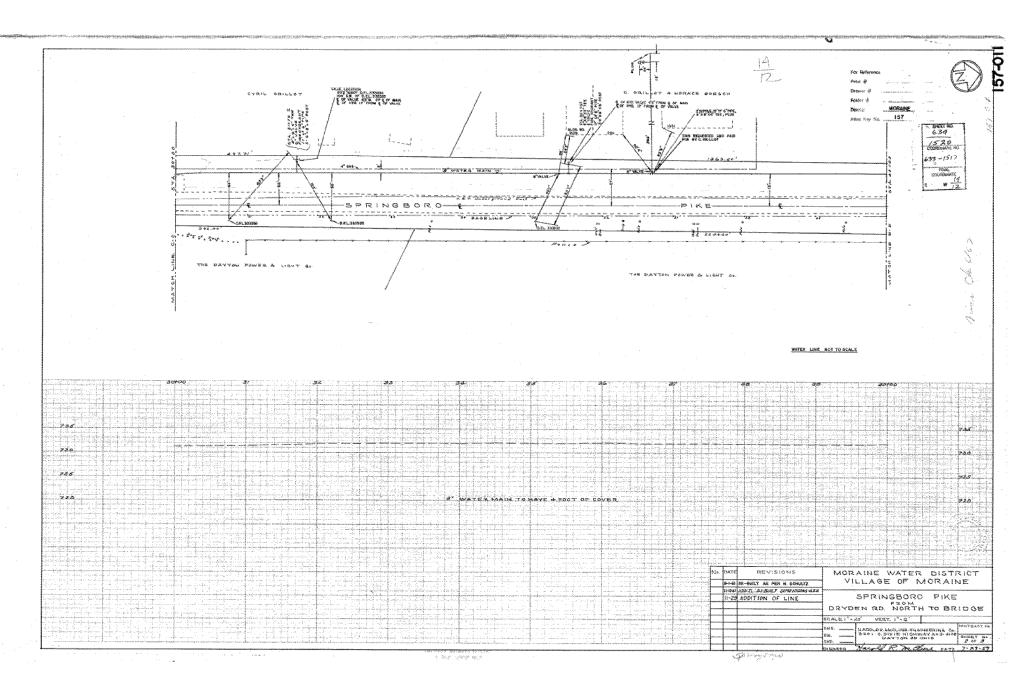
38443-202(MEMO037)GN-WA001 SEP 16, 2016

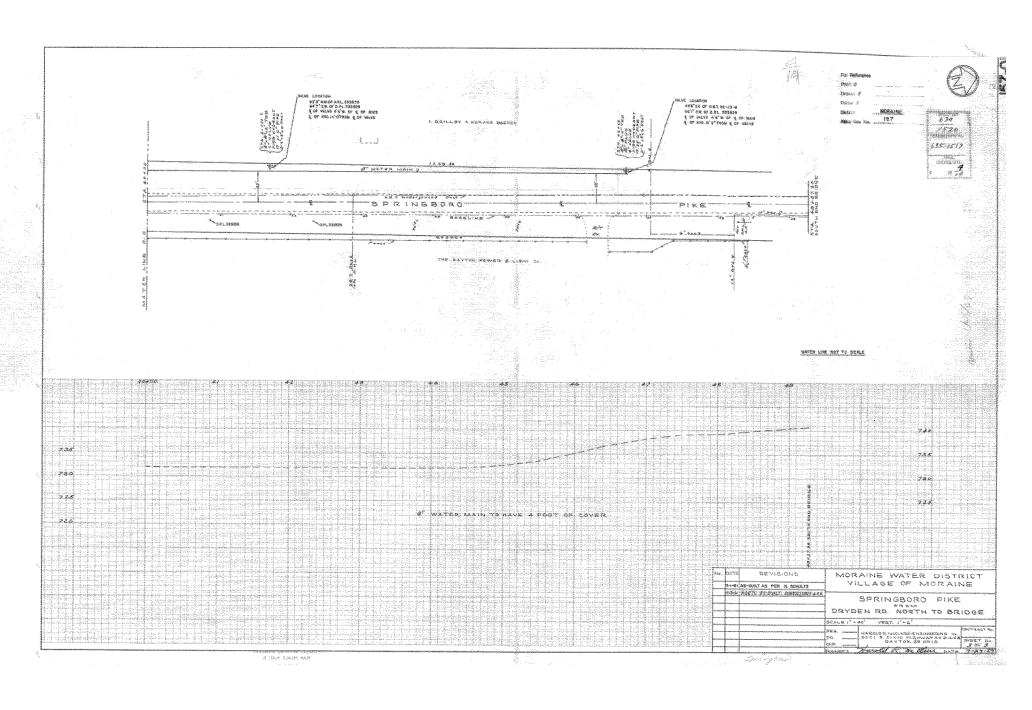


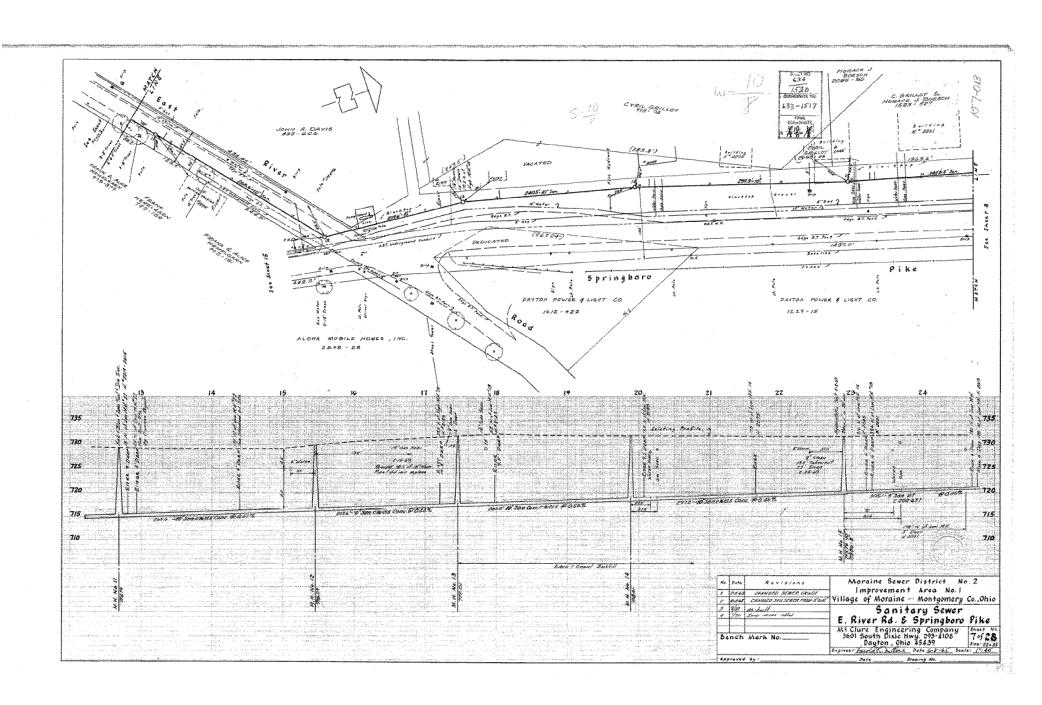


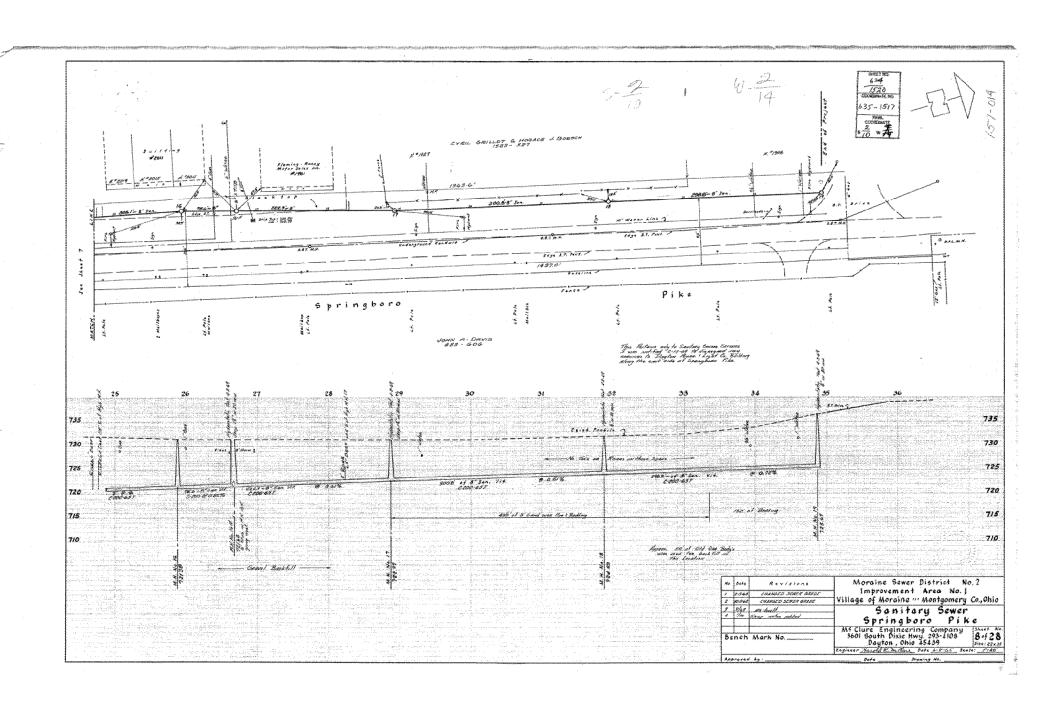
GHD | 038443Memo-37-AttTPs

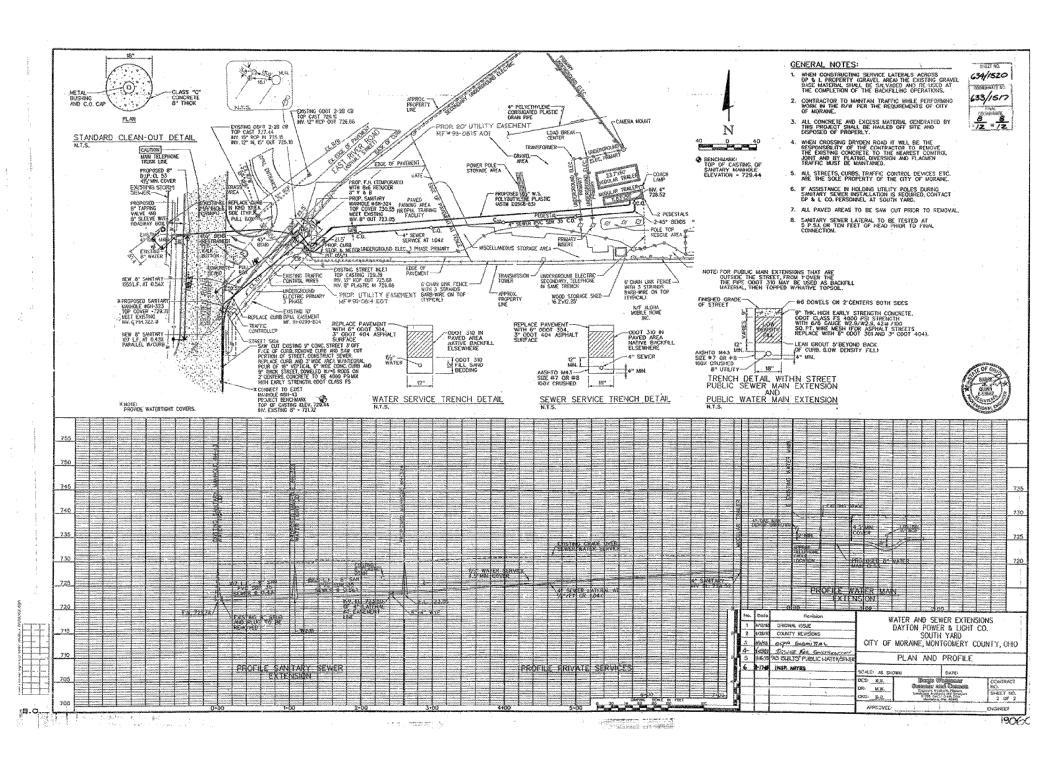


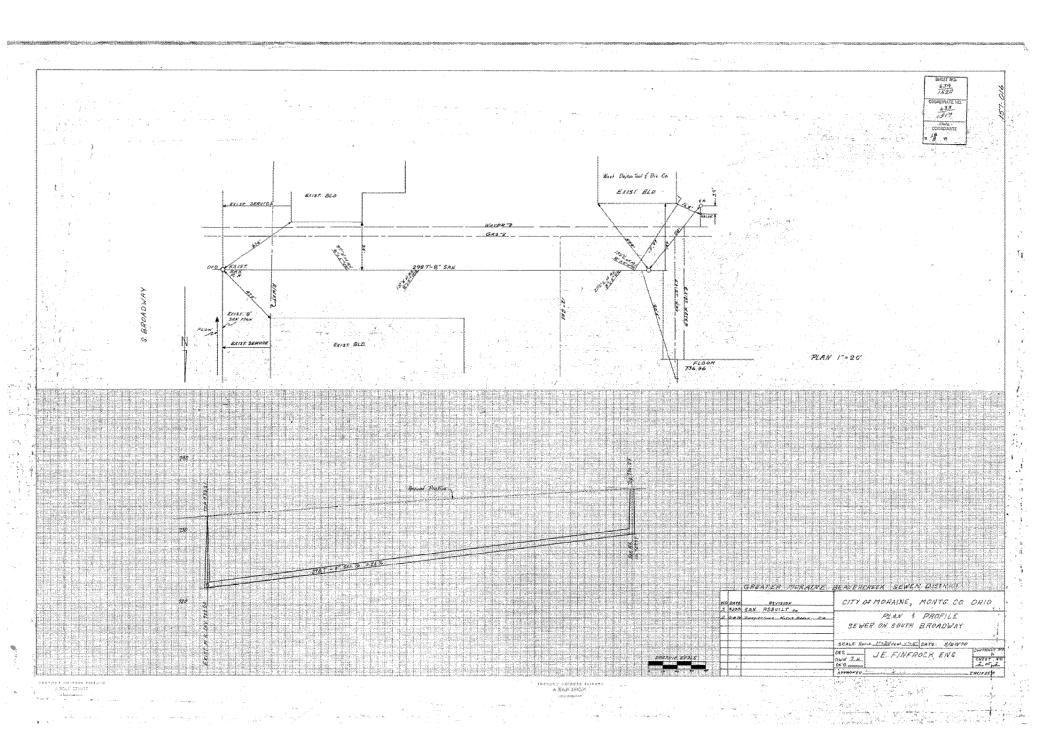


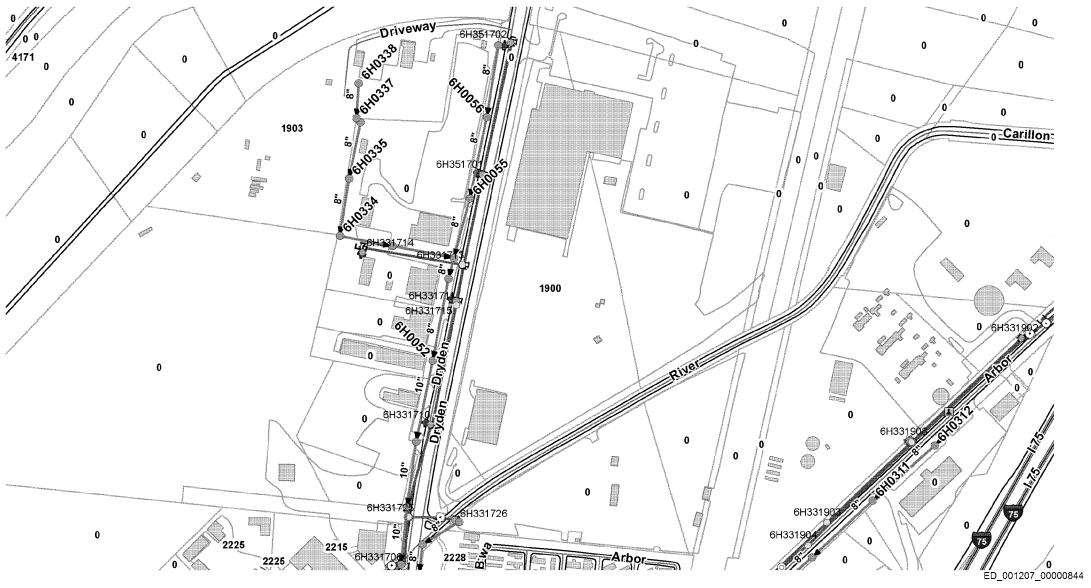












From: Harden, Richard <HardenR@mcohio.org>
Sent: Wednesday, August 31, 2016 2:02 PM

To: Chan, Valerie

Subject: RE: OUPS Ticket A623702683

We do not show Storm on our GIS
The Green is Sanitary
Water is Blue
Yellow is Main Line Vales
Peach is Hydrant Vales

Broadway and Springboro Pike change at the River with Broadway being in the City of Dayton

From: Chan, Valerie [mailto:Valerie.Chan@ghd.com]

Sent: Monday, August 29, 2016 4:40 PM

To: Harden, Richard **Cc:** Baker, Keith

Red are Fire Hydrants

Subject: RE: OUPS Ticket A623702683

Hello Richard,

Thank you for the figures. I had a few questions:

- Is there a legend available for the Attachment A623702683.pdf?
- Does Montgomery County have figures showing storm sewer locations, in addition to the sanitary sewer figures provided? If not, do you know which company I should contact for that information?
- Is S Broadway the same as Springboro Pike aka Dryden Road in the attached TIF?

Thank you, Valerie

Valerie Chan, P.Eng.

GHD

T: 1 519 884 0510 | F: 1 519 884 0525 | E: <u>valerie.chan@ghd.com</u> 651 Colby Drive Waterloo Ontario N2V 1C2 Canada | <u>www.ghd.com</u>

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From: Harden, Richard [mailto:HardenR@mcohio.org]

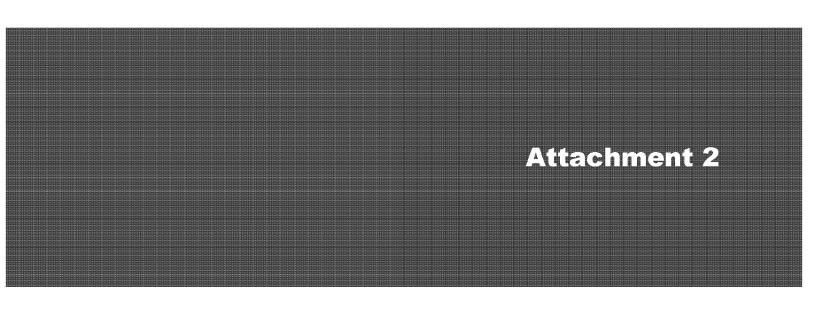
Sent: Friday, August 26, 2016 2:34 PM

To: Chan, Valerie Cc: Baker, Keith

Subject: OUPS Ticket A623702683

Valerie, Here are the drawings for this OUPS ticket. If there is anything else you need, please let me know.

Rich Harden
GIS/CAD Tech.
Environmental Services
Field Services
1850 Spaulding Rd.
Kettering, Ohio 45432
(937) 781-2549



GHD | 038443Memo-37-AttTPs

From: Cox, David <David.Cox@cinbell.com>
Sent: Thursday, August 25, 2016 12:55 PM

To:Chan, ValerieSubject:OUPS responseAttachments:000001_2(crop).pdf

OUPS # A623702683

Subject Area: 1900 Dryden rd

Status: CBT has underground utilities in requested area, reference attachment

David Cox

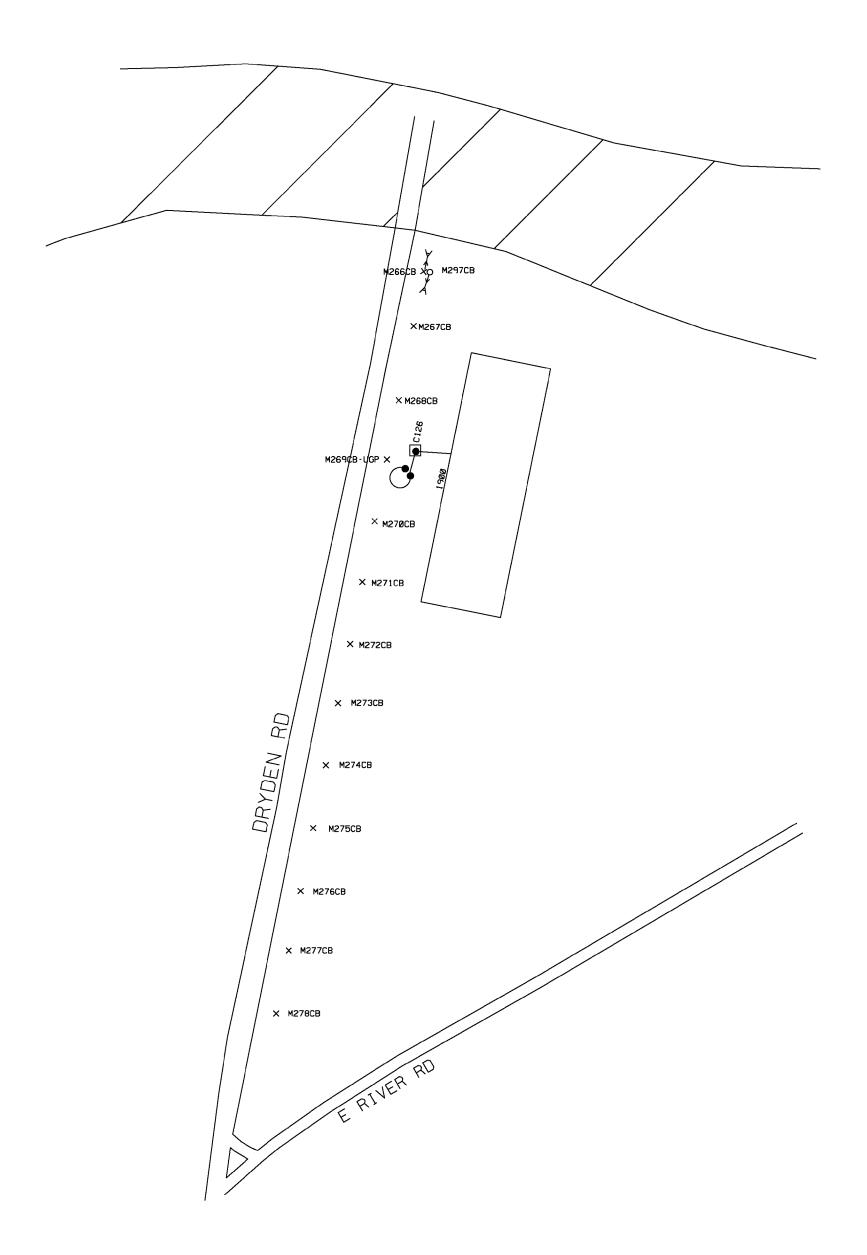
Conduit Group Clerk, Cincinnati Bell

Phone: 513-565-0062 Cell: 513-502-8702

Email: david.cox@cinbell.com

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From: alcs@zlp13991.vci.att.com

Sent: Wednesday, August 24, 2016 1:29 PM

To: Chan, Valerie

Subject: HIGH PRIORITY FACILITY FOUND



AT&T DAMAGE PREVENTION

FIBER OPTIC UTILITY LOCATE NOTIFICATION

Ticket #: {A623702683}

Ticket Address: {1900 DRYDEN RD} {MORAINE}

Caller Name & Phone: {VALERIE CHAN} {519-884-0510 Ext: 2296}

Contractor Name & Phone: {GHD} {}

THIS LOCATE REQUEST IS NEAR AN AT&T HIGH PROFILE FIBER OPTIC FACILITY;
BEFORE DIGGING IN THIS AREA WAIT ON THE LOCATES TO BE PERFORMED;
TAKE CARE TO OBSERVE SITE MARKINGS SUCH AS PAINT AND FLAGS;
HAND DIGGING IS MANDATORY WITHIN THE STATUTORY TOLERANCE ZONE,
DAMAGE PREVENTION IS EVERYONES RESPONSIBILITY.
THANK YOU.

Contact Information

Positive Response : Excavator may use this link to check for positive response. http://www.oups.org/positive-response

AT&T Distribution Damage Prevention: If assistance is needed during an excavation involving AT&T facilities or locate issues.

Briant Thomas, 231-409-7939

One Call Center: Any questions pertaining to a dig ticket should be directed to the state One Call (for example: location requested, utilities in the area or notification processes).

Ohio Utility Protection Services, 800-362-2764

AT&T Distribution Locate Vendor: If assistance is needed with interpretation of markings or locate issues contact the locate company for area.

USIC Dispatch Center, 800-762-0592

Damage Reporting to AT&T Distribution: 888-611-4466 prompt #8

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From: Sent: To: Subject:	agt_comm@irth.com Thursday, August 25, 2016 11:12 PM Chan, Valerie Ticket A623702683 - Response to Dig Request
======================================	n: VALERIE CHAN
Voice: 5198840510 x2296	Fax:
Re: Response to Dig Request	
Hello, this is an important mess	age from Sprint Nextel regarding your request
to locate our underground facil	ities in an area described on the one call
center ticket.	
=======================================	
Ticket: A623702683	
County: MONTGOMERY PI	ace: MORAINE
Address: 1900 DRYDEN RD	
SPTP:	
. Sprint Nextel facilities are cle	ear from the work area described on this
One-Call Center ticket. If you	have any questions or concerns, please call
Sprint Nextel Call Before You	Dig at 1-800-521-0579.
=======================================	
If you have any questions pleas	e contact Sprint at 800-521-0579 that number
again is Sprint at 800-521-0579	

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IRTH.Net@CenturyLink.com From: Sent: Friday, September 02, 2016 8:14 AM To: Chan, Valerie Subject: Centurylink Locate Notification Attn: VALERIE CHAN To: GHD Voice: 5198840510 x2296 Fax: Re: Centurylink Locate Notification Message from CenturyLink This is an important message from CenturyLink replying to your request to locate our underground facilities in an area described on the one call center ticket. If you have any questions please call CenturyLink at 1-800-283-4237 Ticket: A623702683 County: MONTGOMERY Place: MORAINE Address: 1900 DRYDEN RD QSTP: The described dig area of your locate request has been checked and is clear for CenturyLink National Network, but may be a risk to CenturyLink local. If you have any questions, please call CenturyLink at 1-800-283-4237. CenturyLink has closed this ticket. ______

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Centurylink
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From: Schaffer, Charles <SchafferC@mcohio.org>
Sent: Friday, September 09, 2016 5:57 PM

To: Hayward, Julian

Subject: RE: Dryden Road storm sewer

Attachments: DOC090916-09092016175430.pdf; DOC090916-09092016175201.pdf

Attached is a copy of the Water and sanitary sewer atlas in this area. I have also attached a copy of the as-built drawing for Arbor And Carrillon that does show some stm. Sewers. Unfortunately where you have requested we do not have our utilities.

From: Hayward, Julian [mailto:Julian.Hayward@ghd.com]

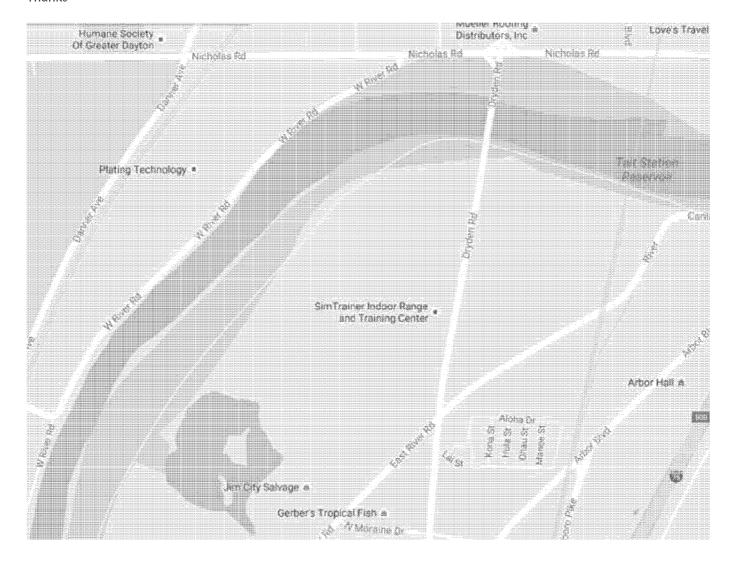
Sent: Friday, September 09, 2016 5:10 PM

To: Schaffer, Charles

Subject: RE: Dryden Road storm sewer

OK, it is the section of Dryden Road within the area depicted below, more specifically the part between the river to the north and East River Road to the south.

Thanks



Julian Hayward

GHD

T: +1 519 884 0510 | M: +1 519 503 3627 | E: julian.hayward@ghd.com

From: Schaffer, Charles [mailto:SchafferC@mcohio.org]

Sent: Friday, September 09, 2016 4:30 PM **To:** Hayward, Julian; schaffercharlie@mcohio.org

Subject: RE: Dryden Road storm sewer

Please provide a map as to the exact location you are looking at. I will see if anything shows up on our as-built drawings of our utilities.

From: Hayward, Julian [mailto:Julian.Hayward@ghd.com]

Sent: Friday, September 09, 2016 2:42 PM **To:** schaffercharlie@mcohio.org; Schaffer, Charles

Subject: Dryden Road storm sewer

Mr. Schaffer,

I was given your name by Tony Wenzler at City of Moraine, he indicated you may be able to assist with my inquiry.

I am working on an environmental investigation in the area of Dryden Road, specifically the section from East River Road extending northward toward the bridge that crosses the river.

The investigation requires some knowledge of buried infrastructure. I have some details from OUPS for sanitary sewer, water, gas etc. but they were not able to provide anything for the storm sewer system.

Would you be able to provide drawings showing the layout of the existing storm sewer system within the area noted above?

Thanks

Julian Hayward, P.Eng.

GHD

T: +1 519 884 0510 | M: +1 519 503 3627 | E: <u>julian.hayward@ghd.com</u> 651 Colby Drive Waterloo Ontario N2V 1C2 Canada | www.ghd.com

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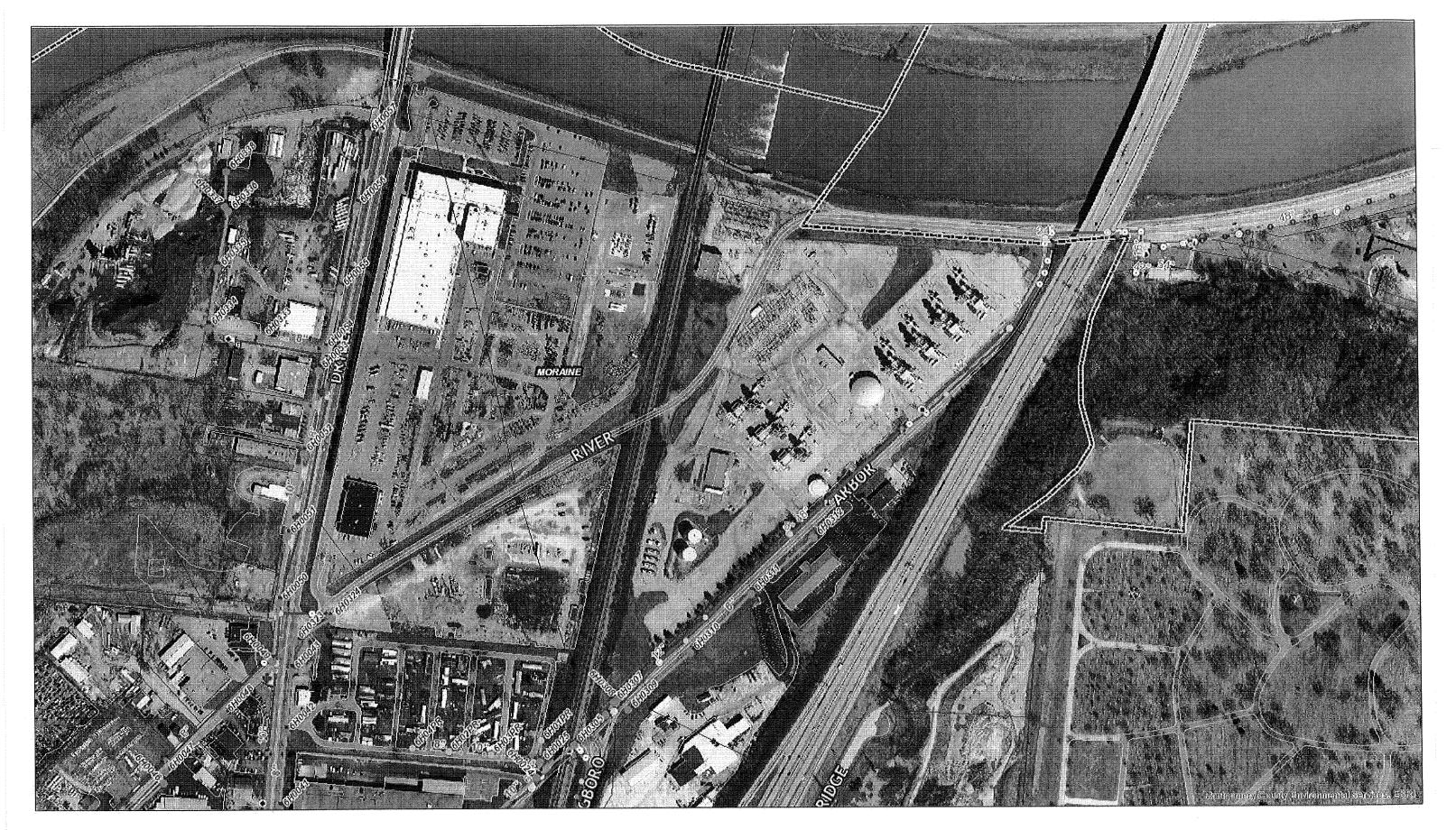
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2







From: Schaffer, Charles <SchafferC@mcohio.org> **Sent:** Monday, September 12, 2016 10:42 AM

To: Hayward, Julian

Subject: RE: Dryden Road storm sewer

Green is sanitary sewers, blue is water mains the Manhole numbers are next to the sanitary manhole circles. Red dots are fire hydrants yellow dots should be water valves. White dots are bends or fitting on the water main. The size of the water main or sanitary sewer main are labeled in blue or green accordingly. The white manholes in the trailer park are private manholes.

I hope this helps.

From: Hayward, Julian [mailto:Julian.Hayward@ghd.com]

Sent: Monday, September 12, 2016 9:27 AM

To: Schaffer, Charles

Subject: RE: Dryden Road storm sewer

Mr. Schaffer, could you provide a legend for the details shown on the arc gis web map (attached)?

I think green line is water main and blue line is sanitary sewer? Or other way around?

Also I can see some red and yellow dots.

Thanks again

Julian Hayward

GHD

T: +1 519 884 0510 | M: +1 519 503 3627 | E: julian.hayward@ghd.com

From: Schaffer, Charles [mailto:SchafferC@mcohio.org]

Sent: Friday, September 09, 2016 5:57 PM

To: Hayward, Julian

Subject: RE: Dryden Road storm sewer

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From: Hayward, Julian [mailto:Julian.Hayward@ghd.com]

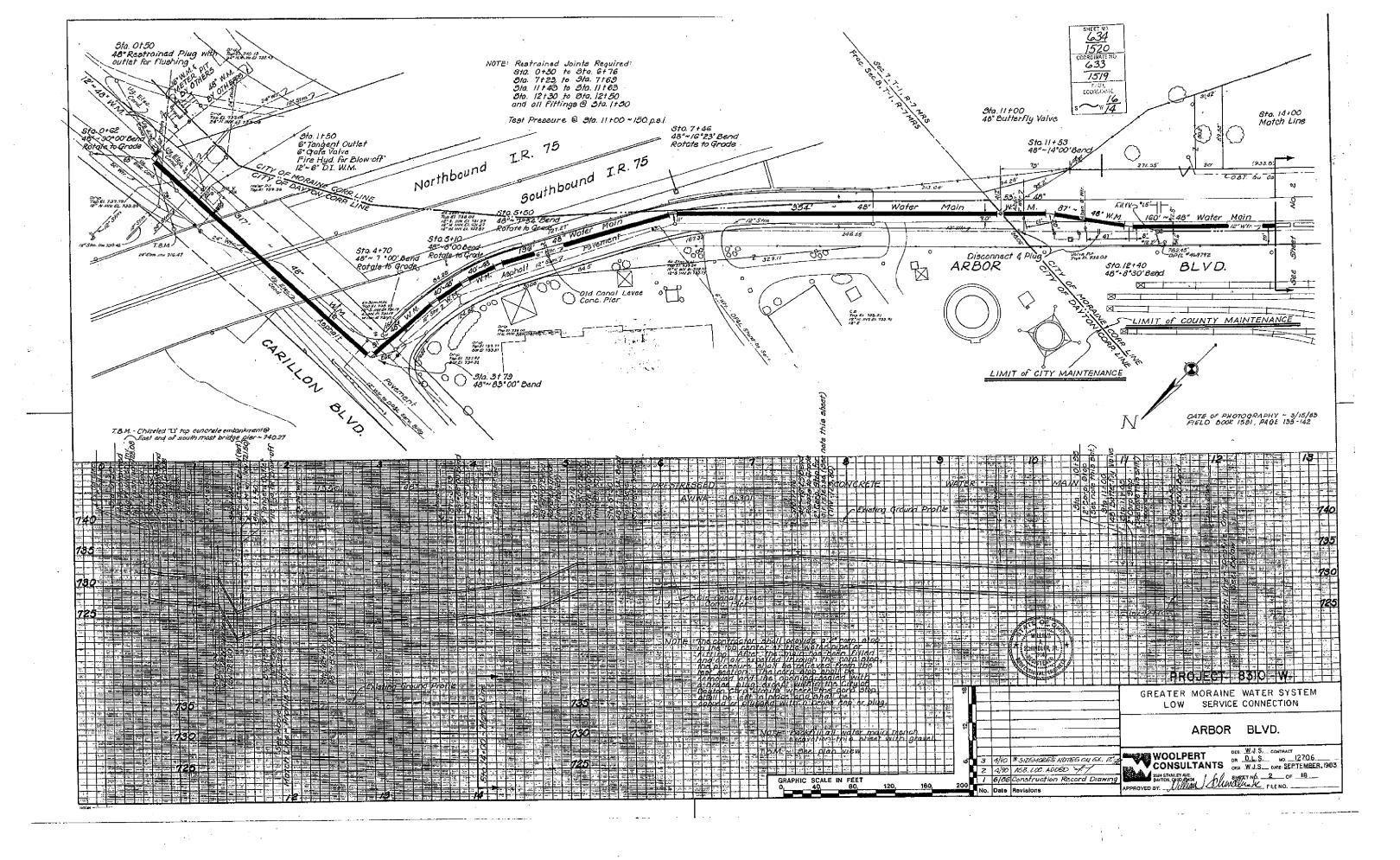
Sent: Friday, September 09, 2016 5:10 PM

To: Schaffer, Charles

Subject: RE: Dryden Road storm sewer

OK, it is the section of Dryden Road within the area depicted below, more specifically the part between the river to the north and East River Road to the south.

Thanks



East, Dominic <dominic.east@level3.com> From: Monday, September 19, 2016 11:47 AM Sent:

Chan, Valerie To:

Subject: Return to Requestor - 1900 Dryden Rd

Attachments: Utility Map.pdf

Valerie,

Level 3 Communications, LLC ("Level 3") has received your utility notice dated 8/25/2016 regarding the 1900 Dryden Rd, Moraine OH ("Project"). In response to your inquiry please find the enclosed drawings indicating the approximate location of the Level 3 telecommunications facilities (the "Facilities"). Note that the locations of Facilities shown on these drawings are only approximate and Level 3 hereby disclaims any responsibility for the accuracy of this information. Persons working in the area covered by these drawings must contact the statewide Call-Before-You-Dig System to ascertain the location of underground facilities prior to performing any excavation.

After reviewing the information you provided it is uncertain whether the Project will impact the Facilities.

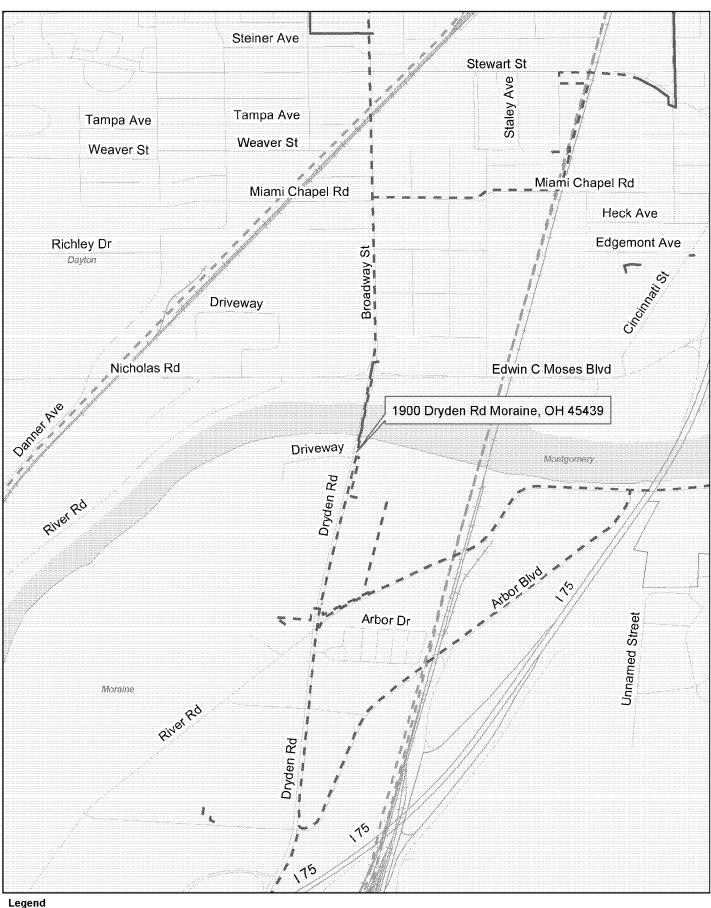
The Facilities have been constructed on private property and/or public right of way with the authorization of the applicable property owner. Prior to any work being performed by or on behalf of Level 3 all costs associated with the adjustment and/or relocation of the Facilities are required to be paid in full to Level 3.

Please review the enclosed information. If it is determined that an adjustment and/or relocation of the Facilities is necessary to accommodate the Project, please contact the undersigned to discuss and reference the file number 65368 GL with any future communications. Any changes or additions to the Project plans or parameters should be submitted to Level 3 for review of potential new impacts to the Level 3 facilities. Unless Level 3 receives information that such adjustment or relocation is necessary it will assume that any potential conflict between the Project and Facilities has been eliminated.

Thank you,

Dominic East Business Analyst, OSP Relocations Level 3 Communications 1025 El Dorado Blvd Broomfield, CO 80021 p: 720.888.4398 e: dominic.east@level3.com

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Level 3 Facilities

■ Aerial

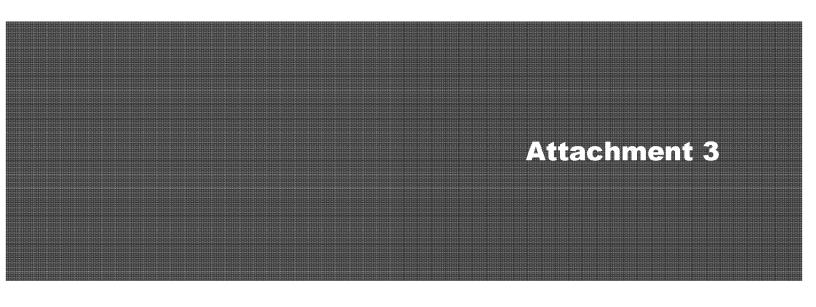
www Underground

···· Underground

Non-Level 3 Fiber Optic Facilities

∞ Aerial

Note that the locations of Facilities shown on these drawings are only approximate and Level 3 hereby disclaims any responsibility to third parties for the accuracy of this information. Persons working in the area covered by these drawings must contact the statewide Call-Before-You-Dig System to ascertain the location of underground facilities prior to performing any excavation.



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Page 1 of 1

PROJECT NAME: SOUTH DAYTON DUMP

PROJECT NUMBER: 038443

CLIENT: ILLINOIS TOOL WORKS INC

LOCATION: MORAINE, OHIO

HOLE DESIGNATION: GP11-09

DATE COMPLETED: August 20, 2009

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	BER		SAMF	N' VALUE	PID (ppm)
	GROUND SURFACE	730.48		NUMBER	INTERVAL	REC (%)	N. V	PID (I
-2	SW/GW - SAND AND GRAVEL (FILL), medium to coarse sand, fine gravel, loose, well graded, brown/tan/off-white, dry SM - SAND AND SILT (FILL), fine to medium sand, cohesive, dark gray/black, dry	728.88	CEMENT BENTONITE CHIPS BENTONITE	1GP		70		0.0
-4	- gravel and sand at 4.6ft BGS		0.5" PVC WELL CASING			_		
-8			BOREHOLE	2GP		70		0.0
-10	- crushed stone at 8.5ft BGS		0.5" PVC WELL SCREEN					
-12 –	SW - SAND, little fine gravel, medium to coarse sand, loose, well graded, brown, dry	718.48 716.98	SAND PACK	3GP		70		0.0
-14 -16 -18	GW/SW - SAND AND GRAVEL, medium to coarse sand, fine gravel, loose, brown, dry			4GP		70		0.0
-22	- wet at 22.0ft BGS		WELL DETAILS Screened interval: 722.48 to 721.48ft 8.00 to 9.00ft BGS Length: 1ft Diameter: 0.5in Slot Size: 0.010 Material: PVC Seal:	5GP		80		0.0
-26	END OF BOREHOLE @ 25.0ft BGS	705.48	729.48 to 723.15ft 1.00 to 7.33ft BGS Material: BENTONITE CHIPS Sand Pack: 723.15 to 710.48ft 7.33 to 20.00ft BGS			-		
-28	OTES: MEASURING POINT ELEVATIONS MAY CHANGE; R		Material: #3 SAND					



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PROJECT NAME: SOUTH DAYTON DUMP

PROJECT NUMBER: 038443

LOCATION: MORAINE, OHIO

CLIENT: ILLINOIS TOOL WORKS INC

HOLE DESIGNATION: GP12-09

DATE COMPLETED: August 21, 2009

DRILLING METHOD: GEOPROBE FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL		1	1		
	GROUND SURFACE	730.61		NUMBER	INTERVAL	REC (%)	50 50 70	PID (nnm)
-2	SW - SAND (FILL), trace silt, trace fine gravel, medium to coarse grained sand, loose, well graded, brown, dry		CEMENT BENTONITE 0.5" PVC WELL CASING 2" BOREHOLE	1GP		50		0.0
-6 - -8	- red clay brick fragments at 6.0ft BGS ML - SANDY SILT (FILL), cohesive, dark brown, damp - rock fragments at 7.8ft BGS	724.51 723.11	0.5" PVC WELL SCREEN	2GP		80		0.
-10	SW/GW - SAND AND GRAVEL, medium to coarse sand, fine gravel, loose, well graded, light brown/tan, dry - rock fragments at 9.3ft BGS					_		
-12 -14	- rock fragments at 13.0ft BGS - rock fragments at 14.2ft BGS			3GP		70		0.
-16	- rock fragments at 17.0ft BGS			400		70		0
-18				4GP		70		0.
-22 -24			▼	5GP		60		0.
-26	END OF BOREHOLE @ 25.0ft BGS	705.61	WELL DETAILS Screened interval:			-		
-28			725.61 to 724.61ft 5.00 to 6.00ft BGS Length: 1ft Diameter: 0.5in Slot Size: 0.010					
-30			Material: PVC Seal: 729.61 to 726.28ft 1.00 to 4.33ft BGS					
-32			Material: BENTONITE Sand Pack: 726.31 to 705.61ft 4.30 to 25.00ft BGS					
1	NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; RI WATER FOUND ♀	EFER TO	Material: #3 SAND					



Page 1 of 1

PROJECT NAME: SOUTH DAYTON DUMP

PROJECT NUMBER: 038443

CLIENT: ILLINOIS TOOL WORKS INC LOCATION: MORAINE, OHIO

HOLE DESIGNATION: GP19-09

DATE COMPLETED: August 24, 2009

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL	<u>~</u>		SAM		
	GROUND SURFA	ACE 734.23		NUMBER	INTERVAL	REC (%)	'N' VALUE	PID (ppm)
-2	GW/SW - SAND AND GRAVEL (FILL), fine, medium and coarse sand, fine gravel, loose, well graded, brown SW - SAND (FILL), fine, medium and coarse sand, little fine gravel, well graded, medium to dark gray, dry - bottom of FILL at 22.5ft BGS	731.23	CEMENT BENTONITE CHIPS BENTONITE 0.5" PVC WELL CASING 2" BOREHOLE 0.5" PVC WELL WELL WELL USBREHOLE USBREHOLE USBREHOLE USBREHOLE	1GP		70		0.0
8	Boulon of the at 22.5k BGG		SCREEN SAND PACK	2GP		50		0.0
12	- pieces of glass at 14.0ft BGS			3GP		40		4.5
16 18 20	- 1' perched H₂O at 19.0ft BGS			4GP		40		0.0
22	SW/GW - SAND AND GRAVEL, loose, well graded, brown to medium brown, dry	711.73		5GP		74		0.0
26	END OF BOREHOLE @ 25.0ft BGS	ిద ి 709.23	WELL DETAILS Screened interval: 730.23 to 729.23ft			-		
28			4.00 to 5.00ft BGS Length: 1ft Diameter: 0.5in Slot Size: 0.010					
30			Material: PVC Seal: 733.23 to 730.90ft 1.00 to 3.33ft BGS					
34			Material: BENTONITE CHIPS Sand Pack: 730.90 to 709.23ft 3.33 to 25.00ft BGS Material: #3 SAND					



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PROJECT NAME: SOUTH DAYTON DUMP

PROJECT NUMBER: 038443

CLIENT: ILLINOIS TOOL WORKS INC

LOCATION: MORAINE, OHIO

HOLE DESIGNATION: GP20-09

DATE COMPLETED: August 24, 2009

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: J. CLOSE

ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft	MONITORING WELL				
	GROUND SURFACE	731.51		NUMBER	INTERVAL	REC (%)	PID (ppm)
-2	SW/GW - SAND AND GRAVEL (FILL), medium to coarse sand, fine gravel, loose, well graded, brown, dry SW - SAND (FILL), fine to medium sand, silt, consolidated, well graded, dark gray, moist	727.51	CEMENT BENTONITE CHIPS BENTONITE 0.5" PVC WELL CASING 2" BOREHOLE 0.5" PVC	1GP		70	0.0
-6	- rust sand at 6.5ft BGS - 1' gray sand, wet (perched water) at 7.0ft BGS - foundry-type sand at 8.5ft BGS	722.51	WELL SCREEN SAND PACK	2GP		60	0.0
-10 -12	SW/GW - SAND AND GRAVEL (FILL), medium to coarse sand, fine gravel, silt, well graded, brown, dry	722.51		3GP		80	0.0
-14 -16 -18	- rock fragments at 16.7ft BGS			4GP		60	0.1
- 20 - 22 - 24	- wet at 23.7ft BGS		▼	5GP		60	0.
-26	END OF BOREHOLE @ 25.0ft BGS	706.51	WELL DETAILS Screened interval: 727.51 to 726.51ft				
-28			4.00 to 5.00ft BGS Length: 1ft Diameter: 0.5in Slot Size: 0.010				
-30			Material: PVC Seal: 730.51 to 728.18ft				
-32			1.00 to 3.33ft BGS Material: BENTONITE CHIPS Sand Pack: 728.18 to 706.51ft 3.33 to 25.00ft BGS Material: #3 SAND				



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PROJECT NAME: SOUTH DAYTON DUMP AND LANDFILL SITE

PROJECT NUMBER: 038443-62-03

CLIENT: PRP GROUP LOCATION: MORAINE, OH HOLE DESIGNATION: GP22-13

DATE COMPLETED: July 3, 2013
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL GAS PROBE			SAM		
n bus		11 003		NUMBER	INTERVAL	REC (ff)	3	PID (ppm)
-2	TOPSOIL SW-SAND (FILL), loose, trace fine gravel, fine to medium sand, some coarse sand, well graded, brown, dry	0.17	CONCRETE	1GP		3.8		0.0
-4	SP-SAND (FILL), slightly compact, fine grained, poorly graded, gray, dry - glass pieces at 4.0ft BGS - some coarse sand/fine gravel, brown at 4.5ft	2.80	BENTONITE CHIPS			-		0.0
8	BGS SW-SAND (FILL), little fine gravel, loose, medium to coarse sand, well graded, brown/black, dry		1/2" PVC WELL CASING	2GP		3.7		0.0
-10			2 1/4" BOREHOLE			-		49.
· 12				3GP		3.2		41. 26.
16	SW/GW-SILTY SAND/GRAVEL, loose, fine,	19.00	SAND PACK	4GP (18-20) (GT-001)		0.0		0.0
20	medium and coarse sand, fine gravel, brown, dry END OF BOREHOLE @ 20.0ft BGS	20.00	WELL DETAILS SCREEN Screened interval: 19.00 to 20.00ft BGS Length: 1ft Diameter: 0.5in			-		
24			Slot Size: 0.25 Material: PVC Seal: 2.00 to 18.20ft BGS Material: BENTONITE CHIPS					
-26			Sand Pack. 19.00 to 20.00ft BGS Material: #3 SAND					
-28								
	NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; RE	FER TO C	CURRENT ELEVATION TABLE					
	CHEMICAL ANALYSIS							



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PROJECT NAME: SOUTH DAYTON DUMP AND LANDFILL SITE

PROJECT NUMBER: 038443-62-03

CLIENT: PRP GROUP LOCATION: MORAINE, OH HOLE DESIGNATION: GP23-13
DATE COMPLETED: July 3, 2013

DRILLING METHOD: GEOPROBE FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SOIL GAS PROBE			SAM		
		1. 500		NUMBER	INTERVAL	REC (ft)	7	PID (ppm)
	SW/GW-SAND/GRAVEL (FILL), loose, medium to coarse sand, fine to coarse gravel, well graded, brown/tan, dry		CONCRETE					0.3
-2	SW-SAND (FILL), trace fine gravel, medium to coarse sand, trace fine sand, well graded, gray, dry - red clay brick fragments at 3.0ft BGS	1.80		1GP		3.7		0.0
4	- fine grained silty sand at 3.8ft BGS - silty sand/gravel at 4.5ft BGS		BENTONITE			_		0.0
6			1/2" PVC WELL CASING	2GP		2.0		2.6
· 8	tuned vices at 40 0ft PCC		2 1/4" BOREHOLE					0.0
12	- wood pieces at 10.0ft BGS	12.00						0.2
14	GW/SW-SAND AND GRAVEL, medium to coarse sand, fine gravel, well graded	12.55		3GP		2.4		0.0
16						_		0.0
18		.	1/4" HOLED	4GP		2.0		0.0
20 —	- silty, moist at 18.7ft BGS	20.00	PVC WELL SCREEN SAND PACK	(18-20°) (GT-002)				0.0
-22	END OF BOREHOLE @ 20.0ft BGS	20.00	WELL DETAILS Screened interval: 17.50 to 18.50ft BGS Length: 1ft					
-24			Diameter: 0.5in Slot Size: 0.25 Material: PVC Seal: 2.00 to 16.70ft BGS					
-26			Material: BENTONITE CHIPS Sand Pack: 16.70 to 20.00ft BGS Material: #3 SAND					
28								
NC	OTES: MEASURING POINT ELEVATIONS MAY CHANGE;	REFER TO C	CURRENT ELEVATION TABLE					
	CHEMICAL ANALYSIS							



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PROJECT NAME: SOUTH DAYTON DUMP AND LANDFILL SITE

PROJECT NUMBER: 038443-62-03

CLIENT: PRP GROUP LOCATION: MORAINE, OH HOLE DESIGNATION: GP24-13

DATE COMPLETED: July 3, 2013
DRILLING METHOD: GEOPROBE
FIELD PERSONNEL: J. CLOSE

DEPTH	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH	SOIL GAS PROBE			SAMF	PLE	
ft BGS	STRATIGRAPHIC DESCRIPTION & REWARKS	ft BGS	SOIL GAS PROBE	NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
-	SP-SAND, trace silt, loose, little fine gravel, fine grained, poorly graded, brown, dry - silt at 1.3ft BGS	1.40	CONCRETE					0.0
-2 - -	SW-SAND, loose, medium to coarse sand, well graded, gray black - red clay brick at 1.7ft BGS SP-SAND, slightly compact, fine grained,	2.00		1GP		4.0		0.0
4 6	poorly graded, gray - perched water zone at 4.5ft BGS		BENTONITE CHIPS 1/2" PVC					0.0
- - - -8	CL-SILTY CLAY, trace coarse sand and fine gravel, cohesive, low plasticity, brown, dry	7.00 7.80	WELL CASING	2GP		4.5		2.5
- - - - 10	SP-SAND, slightly compact, fine grained, poorly graded, gray - coarse sand, yellow/black at 8.9ft BGS - silty sand at 9.5ft BGS		BOREHOLE			4.0		0.0
- - - -12								0.0
- - - -14				3GP		0.7		0.0
_ _ 16	ML-CLAYEY SILT, brown, moist	15.00 16.00		(15-17\) (GT-003)				0.0
100 ZH2 CH4	SW/GW-SAND/GRAVEL, loose, well graded, brown/tan, dry		SAND PACK	4GP		2.5		0.0
₹ - - - - - - - - - - - - - - - - - - -		20.00	1/4" HOLED PVC WELL					0.0
013.GFJ C	END OF BOREHOLE @ 20.0ft BGS		WELL DETAILS SCREEN Screened interval: 19.00 to 20.00ft BGS					
			Length: 1ft Diameter: 0.5in Slot Size: 0.25 Material: PVC					
- 24 - 24 - 24 - 26 - 26 - 26 - 26 - 28			Seal: 2.00 to 18.20ft BGS Material: BENTONITE CHIPS Sand Pack:					
			19.00 to 20.00ft BGS Material: #3 SAND					
2 2 1 1	NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; RE	FER TO C	URRENT ELEVATION TABLE					
OVERBURDEN LOG	CHEMICAL ANALYSIS							